

WHAT IS CLAIMED IS:

1. A path timing detecting method in a mobile communications system, in which when a plurality of mobile stations access a base station using a common channel at arbitrary timings, each mobile station transmits a preamble for notifying the base station of an occurrence of a message before actually transmitting the message, the base station transmits, in response to reception of the preamble, a transmission control signal authorizing the mobile station to transmit the message, and the mobile station that receives the transmission control signal starts transmitting the message, said path timing detecting method comprising:

15 a step of identifying an effective path timing range using the preamble received by base station; and

a step of detecting effective path timings in the identified path timing range using the message transmitted from the mobile station.

20

2. The path timing detecting method in a mobile communications system as claimed in claim 1, wherein

the step of identifying the effective path timing range determines the effective path timing range as ranging from a start point to an end point, the start point being placed at a timing previous to an earliest one of the path timings detected from the preamble received by the base

25

station by a first time period, and the end point being placed at a timing later than a latest one of the path timings by a second time period.

- 5 3. A base station in a mobile communications system, in which when a plurality of mobile stations access the base station using a common channel at arbitrary timings, a mobile station transmits a preamble for notifying the base station of an occurrence of a message before actually
10 transmitting the message, the base station transmits, in response to reception of the preamble, a transmission control signal authorizing the mobile station to transmit the message, and the mobile station that receives the transmission control signal starts transmitting the
15 message, said base station comprising:

identifying means for identifying an effective path timing range using the preamble received; and

- detecting means for detecting effective path timings in the identified path timing range using the message
20 transmitted from the mobile station.

4. The base station in a mobile communications system as claimed in claim 3, wherein

- said identifying means determines the effective path
25 timing range as ranging from a start point to an end point, the start point being placed at a timing previous to an earliest one of the path timings detected from the preamble

received by the base station by a first time period, and the end point being placed at a timing later than a latest one of the path timings by a second time period.

- 5 5. A mobile communications system in which a plurality of mobile stations access a base station at any arbitrary timings using a common channel, wherein

said mobile stations each comprises:

means for transmitting a preamble for notifying

- 10 said base station of an occurrence of a message before actually transmitting the message, and wherein

said base station comprises:

means for transmitting, in response to the reception of the preamble sent from said mobile station,

- 15 a transmission control signal authorizing said mobile station to transmit the message;

identifying means for identifying an effective path timing range from the preamble; and

- 20 detecting means for detecting effective path timings in the identified path timing range using the message sent from said mobile station.

6. The mobile communications system as claimed in claim 5, wherein

- 25 said identifying means determines the effective path timing range as ranging from a start point to an end point, the start point being placed at a timing previous to an

earliest one of the path timings detected from the preamble received by the base station by a first time period, and the end point being placed at a timing later than a latest one of the path timings by a second time period.

5

7. A storing medium that stores, in a form of a communication control program, a path timing detecting method in a mobile communications system, in which when a plurality of mobile stations access a base station using
10 a common channel at arbitrary timings, a mobile station transmits a preamble for notifying the base station of an occurrence of a message before actually transmitting the message, the base station transmits, in response to reception of the preamble, a transmission control signal
15 authorizing the mobile station to transmit the message, and the mobile station that receives the transmission control signal starts transmitting the message, said path timing detecting method comprising: a step of identifying an effective path timing range using the preamble received
20 by base station; and a step of detecting effective path timings in the identified path timing range using the message transmitted from the mobile station.

8. The storing medium as claimed in claim 7, wherein
25 the step of identifying the effective path timing range determines the effective path timing range as ranging from a start point to an end point, the start point being

placed at a timing previous to an earliest one of the path
timings detected from the preamble received by the base
station by a first time period, and the end point being
placed at a timing later than a latest one of the path
5 timings by a second time period.